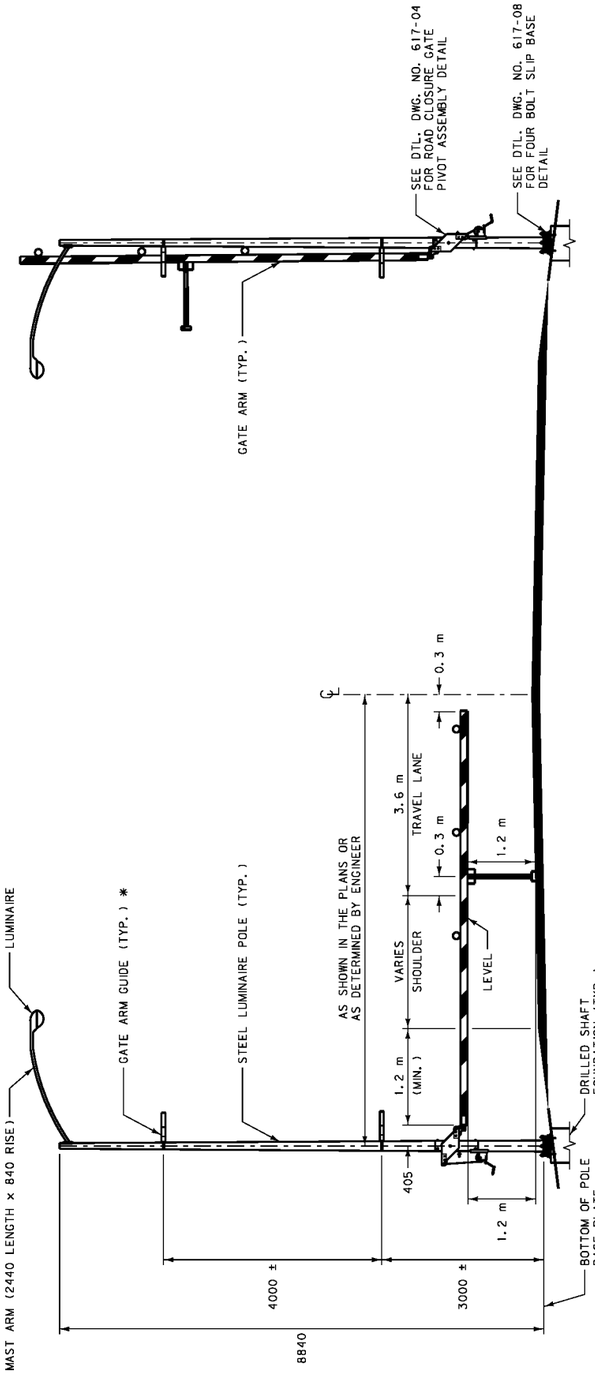
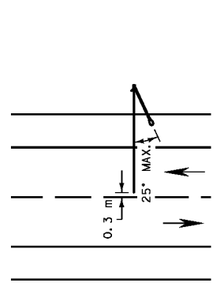


TYPICAL RAISED POSITION

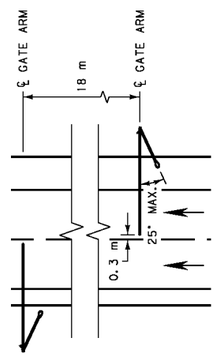
NOTES:
* HEIGHT OF GATE ARM GUIDES MAY VARY AS REQUIRED FOR WARNING LIGHT CLEARANCES.
SEE DTL. DWG. NO. 617-02 FOR ADDITIONAL ROAD CLOSURE GATE DETAILS.

ELEVATION
DIVIDED HIGHWAY INSTALLATION SHOWN



TYPICAL TWO-WAY, TWO-LANE INSTALLATION
(1 GATE REQUIRED)

TYPICAL LOWERED POSITION

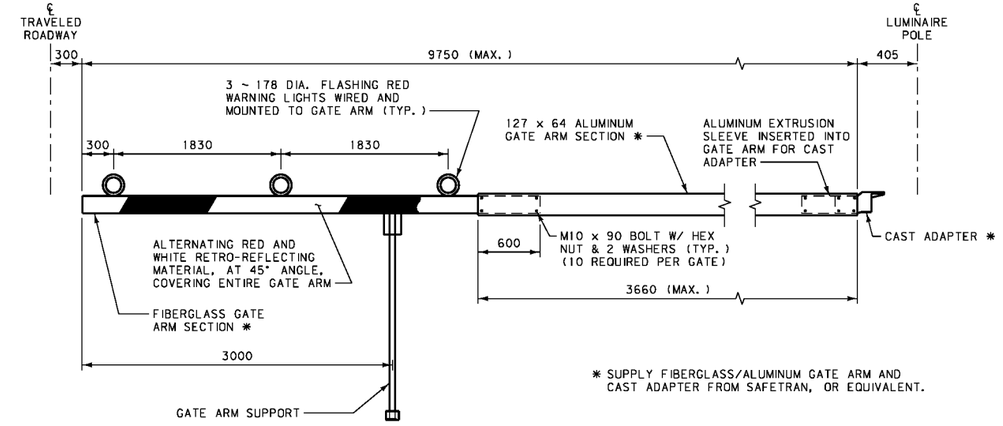


TYPICAL DIVIDED HIGHWAY INSTALLATION
(2 GATES REQUIRED)

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

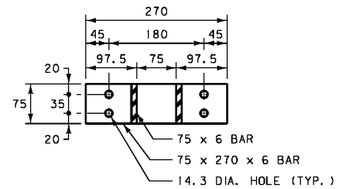
DETAILED DRAWING	DWG. NO.
REFERENCE STANDARD SPEC. SECTION 617	617-00
ROAD CLOSURE GATE	
EFFECTIVE: AUGUST 1999	

MONTANA DEPARTMENT OF TRANSPORTATION — MONTANA CADD

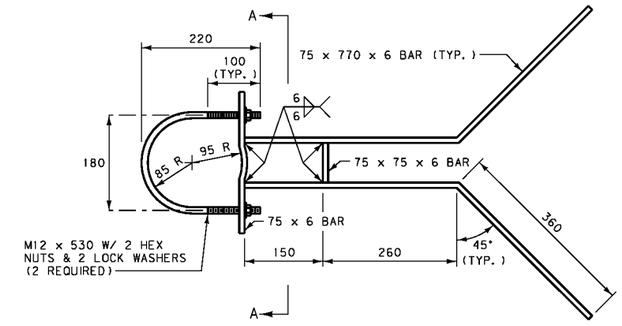


* SUPPLY FIBERGLASS/ALUMINUM GATE ARM AND CAST ADAPTER FROM SAFETRAN, OR EQUIVALENT.

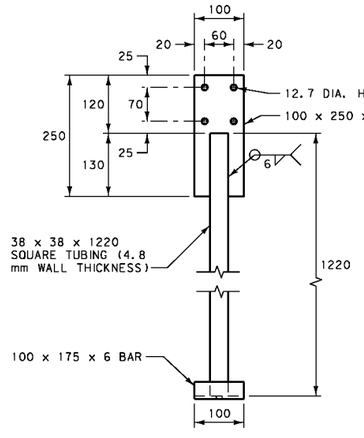
GATE ARM



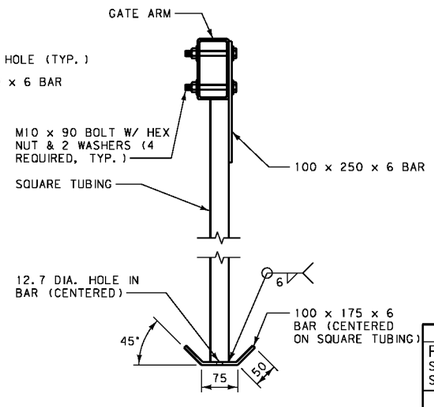
SECTION A-A
(U-BOLTS NOT SHOWN)



GATE ARM GUIDE



ELEVATION
(GATE ARM AND BOLTS NOT SHOWN)



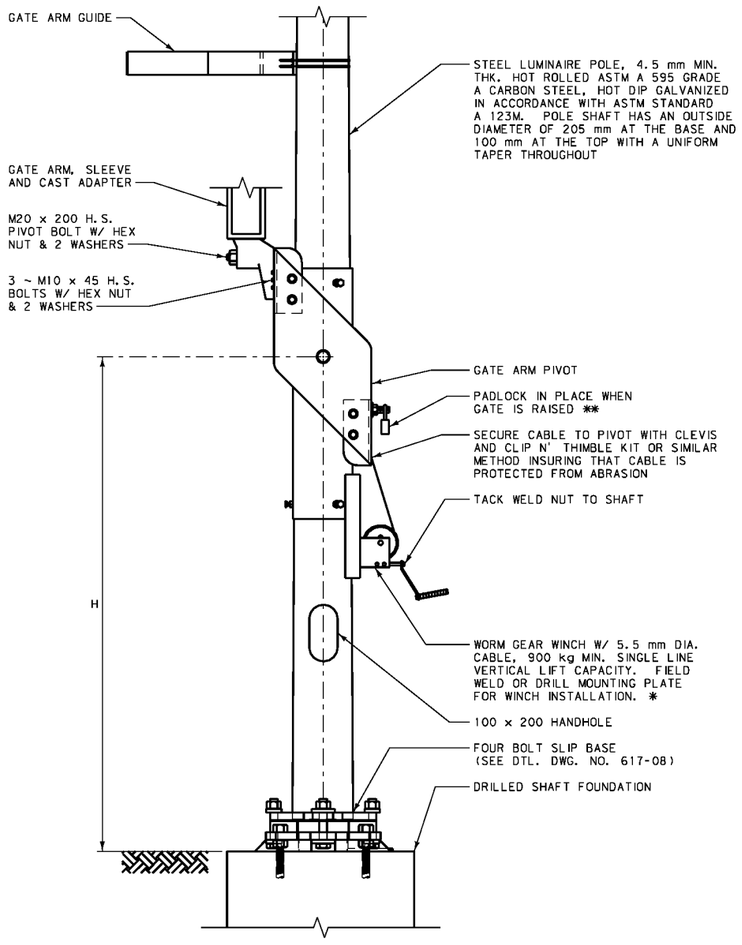
RIGHT SIDE

GATE ARM SUPPORT

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING	DWG. NO.
REFERENCE STANDARD SPEC. SECTION 617	617-02
ROAD CLOSURE GATE DETAILS	
EFFECTIVE: AUGUST 1999	

MONTANA DEPARTMENT OF TRANSPORTATION — MONTANA CADD



ROAD CLOSURE GATE
PIVOT ASSEMBLY

NOTES:

SEE DTL. DWG. NO. 617-06 FOR PIVOT ASSEMBLY DETAILS.

MOUNTING HEIGHT (H) WILL BE SHOWN IN THE PLANS OR SPECIFIED BY THE ENGINEER TO PROVIDE FOR THE PROPER HEIGHT OF THE GATE ABOVE THE ROADWAY.

ALL BOLTS ARE TO CONFORM TO ASTM F 568M CLASS 4.6, UNLESS DESIGNATED H.S. (HIGH STRENGTH), WHICH ARE TO CONFORM TO ASTM A 325M. AFTER ROAD CLOSURE GATE ASSEMBLY, PAINT ALL EXPOSED BOLT THREADS OR DAMAGE TO THE GALVANIZING WITH TWO COATS OF ZINC RICH PAINT CONFORMING TO ASTM A 780.

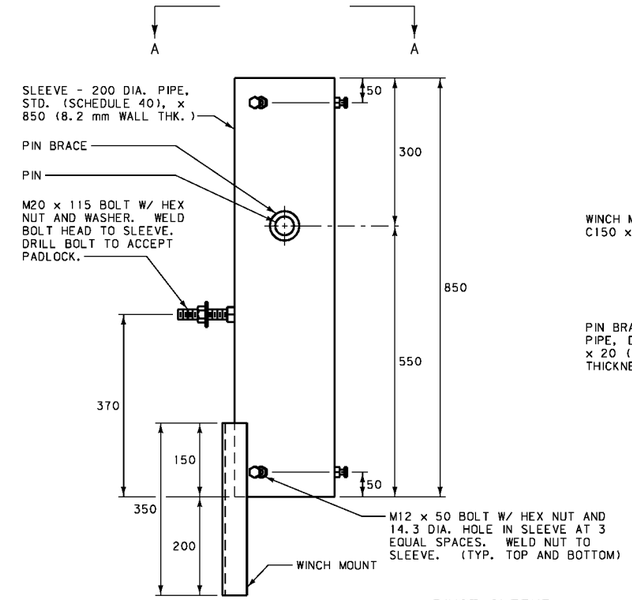
* SUPPLY WORM GEAR WINCH AND CABLE FROM DUTTON - LAINSON (STOCK NUMBER 4Z183), OR EQUIVALENT.

** WHEN THE GATE IS FULLY RAISED, PLACE THE NUT AND WASHER SNUGLY AGAINST THE OUTSIDE OF THE REAR CHANNEL AND PADLOCK IN PLACE. SUPPLY ONE HEAVY, WEATHERPROOF PADLOCK WITH 2 KEYS FOR EACH GATE ARM PIVOT. KEY PAIRED PIVOTS (DIVIDED HIGHWAY INSTALLATION) ALIKE.

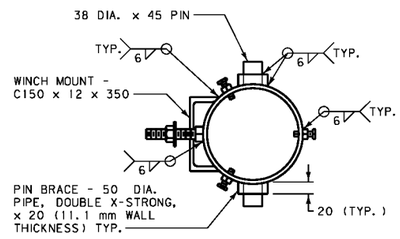
ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING	
REFERENCE STANDARD SPEC. SECTION 617	DWG. NO. 617-04
ROAD CLOSURE GATE PIVOT ASSEMBLY	
EFFECTIVE: AUGUST 1999	

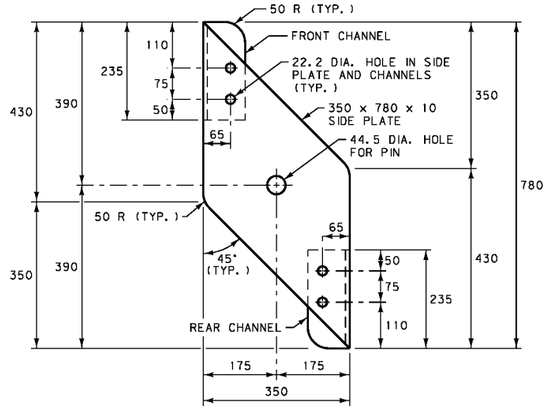
MONTANA DEPARTMENT OF TRANSPORTATION — MONTANA CADD



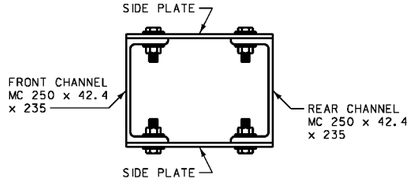
PIVOT SLEEVE



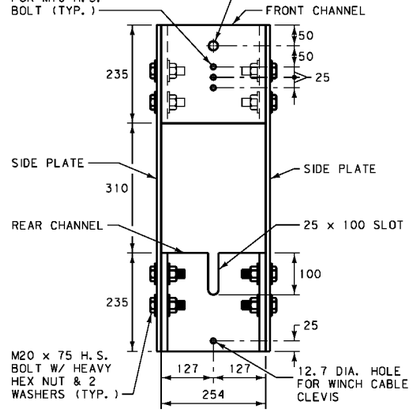
VIEW A-A



ELEVATION



PLAN



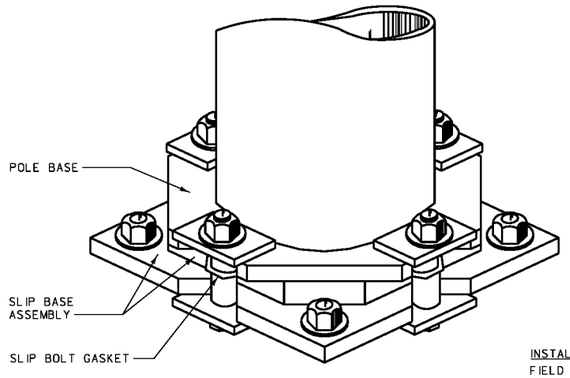
END VIEW

SIDE PLATE

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING	
REFERENCE STANDARD SPEC. SECTION 617	DWG. NO. 617-06
ROAD CLOSURE GATE PIVOT ASSEMBLY DETAILS	
EFFECTIVE: AUGUST 1999	

MONTANA DEPARTMENT OF TRANSPORTATION — MONTANA CADD



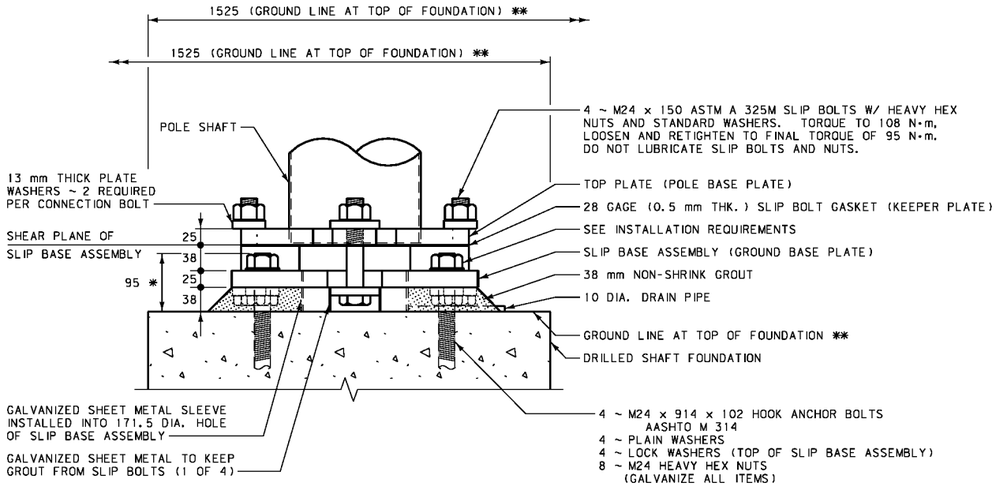
ISOMETRIC VIEW

* TOP OF ANCHOR BOLTS MUST BE BELOW SHEAR PLANE.

** IT IS CRITICAL THAT THE GROUND SURROUNDING THE CONCRETE FOUNDATION BE GRADED AND CONTOURED TO PREVENT VEHICLE UNDERCARRIAGE SNAGGING. ALL POINTS ON THE GROUND SURFACE ARE TO BE AT THE TOP OF THE FOUNDATION WITHIN ANY 1525 mm HORIZONTAL DISTANCE EXTENDING OVER THE SLIP BASE AS SHOWN, AND ALIGNING PERPENDICULAR TO THE ROADWAY CENTERLINE OR ON A RADIAL LINE FOR A CURVED ROADWAY.

INSTALLATION REQUIREMENTS FOR TOP NUTS OF ANCHOR BOLTS

FIELD LUBRICATE BEARING FACE AND THREADS OF TOP ANCHOR BOLT NUTS WITH A STICK WAX. TIGHTEN TOP NUTS TO SNUG-TIGHT. SNUG-TIGHT IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE GROUND BASE PLATE IS IN FIRM CONTACT WITH THE TOP AND BOTTOM NUTS, AND IS ATTAINED BY THE FULL EFFORT OF A MAN USING AN ORDINARY SPUD WRENCH. AFTER THE SNUG-TIGHT CONDITION IS ATTAINED, ROTATE THE TOP NUTS AN ADDITIONAL 45° (+20°, -0°).



FOUR BOLT SLIP BASE

NOTES:

SEE DTL. DWG. NO. 617-10 FOR FOUR BOLT SLIP BASE DETAILS AND DRILLED SHAFT FOUNDATION.

CONFORM SLIP BOLT GASKET (KEEPER PLATE) TO ASTM A 653M GRADE 230 WITH COATING ASTM G 90.

CONFORM ALL PLATES TO ASTM A 709M (GRADE 250) OR AASHTO M 270M.

GALVANIZE ALL STRUCTURAL STEEL AFTER FABRICATION ACCORDING TO ASTM A 123M. ALL CONTACT AREAS OF STRUCTURAL STEEL ARE TO BE FREE OF GALVANIZING BEADS AND RUNS.

ELECTRO-PLATE ALL CONNECTING HARDWARE (HIGH STRENGTH BOLTS, HEAVY HEX NUTS AND STD. WASHERS) WITH CADMIUM IN ACCORDANCE WITH ASTM B 766 CLASS 12.

DO NOT ENCLOSE ANY SLIP BOLT HEADS OR WASHERS IN GROUT AND KEEP THEM COMPLETELY MECHANICALLY ACCESSIBLE, ALLOWING BOLTS TO BE FREELY PUSHED OUT DURING VEHICLE IMPACT.

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING	
REFERENCE STANDARD SPEC. SECTION 617	DWG. NO. 617-08
FOUR BOLT SLIP BASE	
EFFECTIVE: AUGUST 1999	

MDT MONTANA DEPARTMENT OF TRANSPORTATION — MONTANA CADD

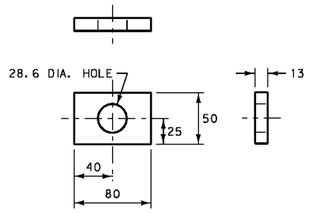
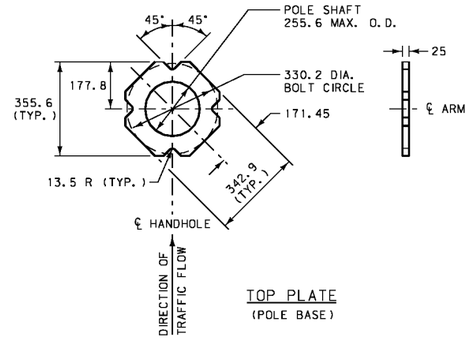
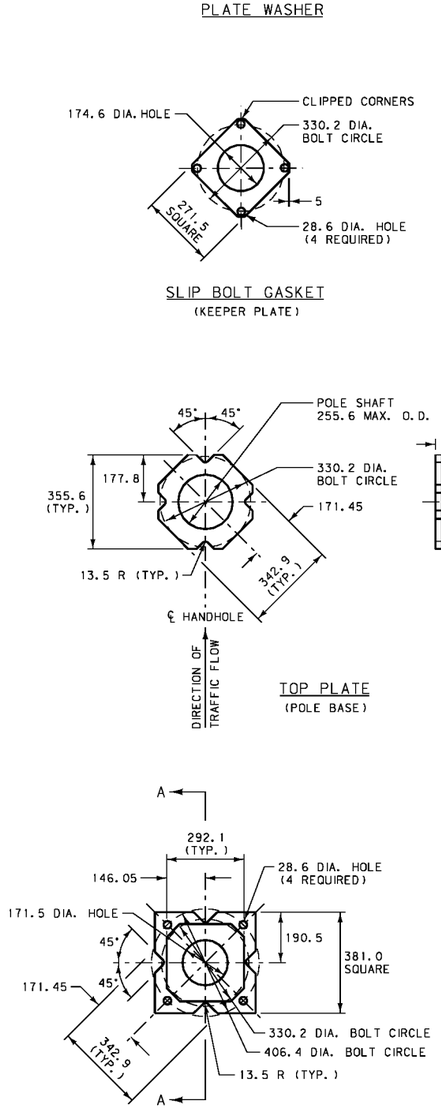


PLATE WASHER

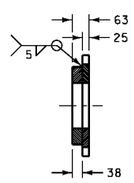
SLIP BOLT GASKET
(KEEPER PLATE)



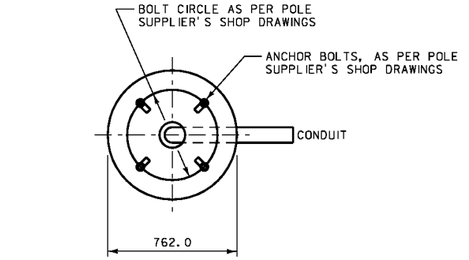
TOP PLATE
(POLE BASE)

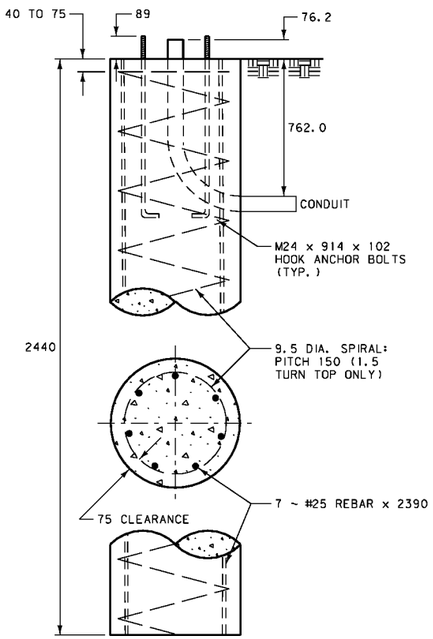


SLIP BASE ASSEMBLY
(GROUND BASE PLATE)



SECTION A-A





DRILLED SHAFT FOUNDATION
(LUMINAIRE POLE)

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING	
REFERENCE STANDARD SPEC. SECTION 617	DWG. NO. 617-10
FOUR BOLT SLIP BASE DETAILS	
EFFECTIVE: AUGUST 1999	

MDT MONTANA DEPARTMENT OF TRANSPORTATION — MONTANA CADD